(No Model.)

G. C. WATRISS & L. HEYNEMANN.

CONSTRUCTION OF ROAD BEDS FOR STREET RAILWAYS.

No. 442,652. Patented Dec. 16, 1890.

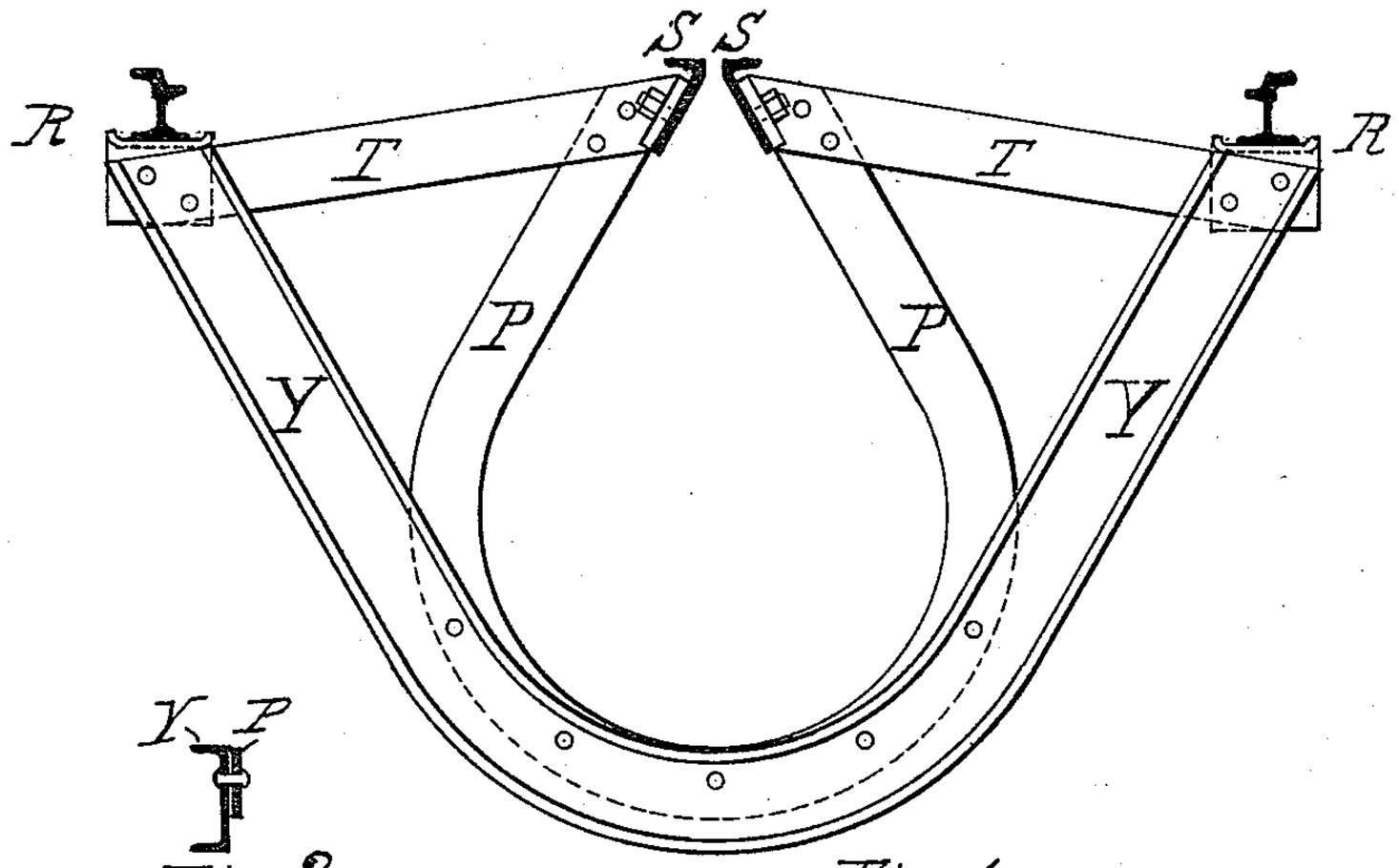

Fig 1.

Fig 2.

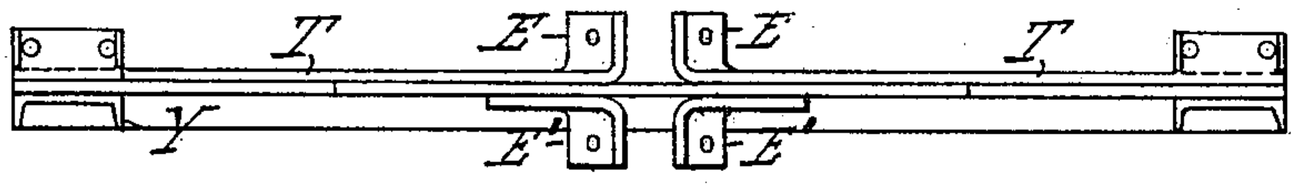

Fig 3.

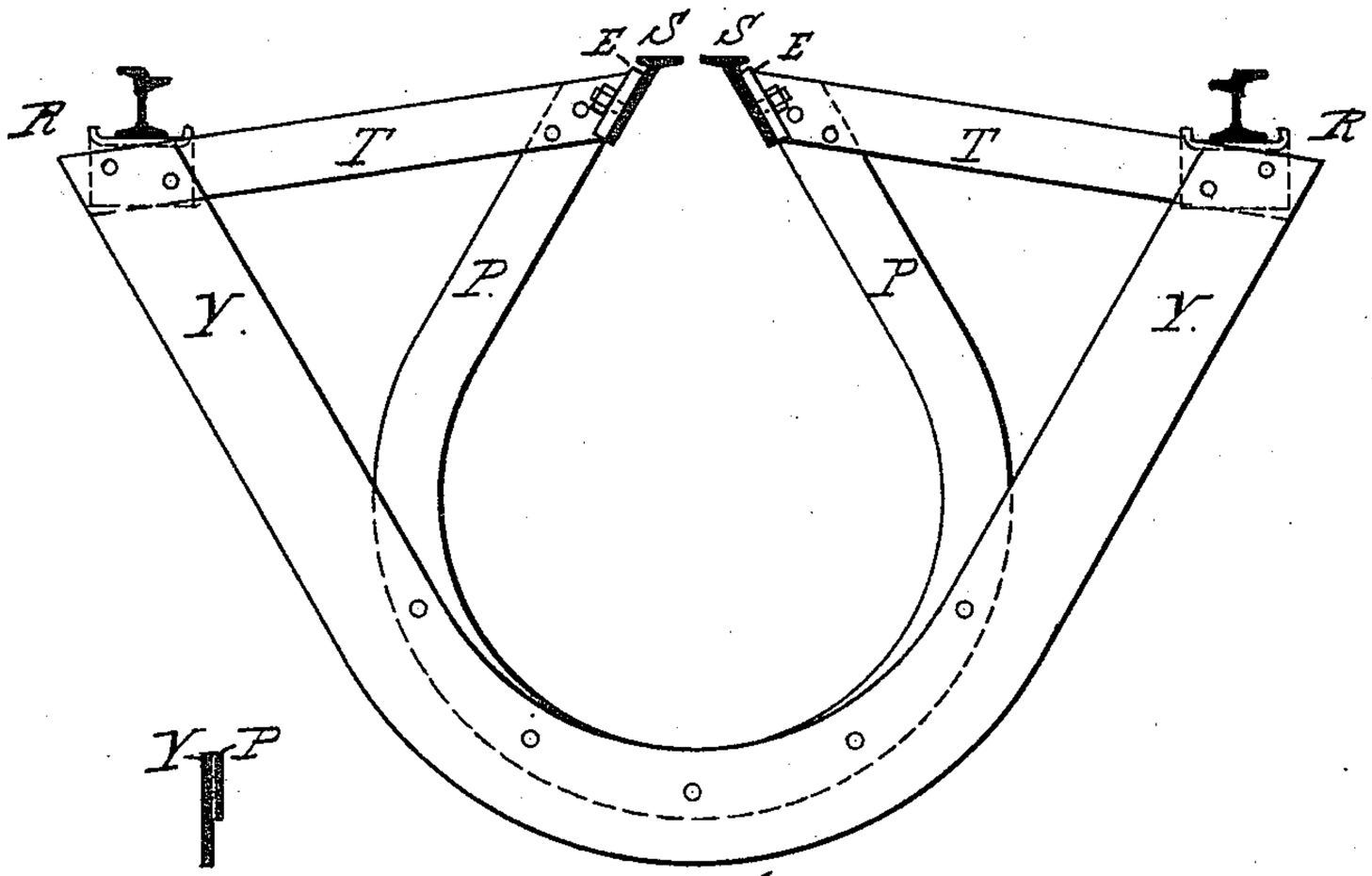

Fig 4.

Fig 5.

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UNITED STATES PATENT OFFICE.

GEORGE C. WATRISS AND LIONEL HEYNEMANN, OF SAN FRANCISCO, CALIFORNIA.

CONSTRUCTION OF ROAD-BEDS FOR STREET-RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 442,652, dated December 16, 1890.

Application filed May 21, 1890. Serial No. 352,650. (No model.)

To all whom it may concern:

Be it known that we, GEORGE C. WATRISS and LIONEL HEYNEMANN, both of the city and county of San Francisco, State of California, have invented certain Improvements in the Construction of the Road-Bed of Street-Railways, of which the following is a specification.

Our invention relates to street-railways which require a slotted tube under the road-bed, and more particularly to that part designed to carry the rails and slot-irons, and commonly known as the "yoke."

The great number of yokes necessary in the construction of the road-bed make it desirable that the yokes should combine strength with lightness and economy. In the yokes heretofore in use made of rolled-iron sections the material is not disposed in the most favorable manner.

The novelty of our invention consists in the forms of iron sections employed for the various parts of the yoke and their arrangement relatively to each other and to the rails and slot-rails, and the object is to combine stiffness with lightness and convenience for the fastenings. This object we accomplish in the manner shown in the accompanying drawings, in which—

Figures 1 and 4 represent views of two variations of our yoke; Fig. 3, a plan of Fig. 1 with the slot-irons and rails removed; Figs. 2 and 5, vertical sections through the bottom of the yoke.

Similar letters refer to similar parts.

Figs. 1, 2, and 3 refer to the yoke, built of what is known as "channel-iron" in the iron trade, meaning a section having a web and two flanges on one side and at each end of said web, forming a U shape with a flat back. The channel-iron section combines great stiffness with lightness, together with a shape well adapted for hold in the road-bed material and for convenience in making fastenings. We employ this channel-bar section for the yoke-bar Y Y, (shown in Figs. 1, 2, and 3,) which yoke-bar has the purpose of directly supporting the rails on the chairs R R and preventing a closing of the slot-irons S S by lateral pressure through the tie-bars T T.

For the direct support of the slot-irons S S angle-iron section has been used, its flange offering a surface for fastening these slot-irons. We employ for these supports flat-bar sections P P as the cheapest and obtain a surface for fastening the slot-irons by bending the ends E E of the tie-bars T T, arranged singly or double. These bent ends E E form ears for the slot-iron bolts. We prefer to use single connecting-bars T with bent ends E, and when two bolts for fastening the channel-rail are required on each side use either the double tie-bar with bent ends or the single bar in conjunction with a short angle-piece E′ E′, Fig. 3.

For the sake of cheapness, the channel-iron yoke-bar Y may be replaced by a flat-bar section, as shown in Figs. 4 and 5, and special pieces fastened onto the same to obtain a better hold in the road-bed material. The posts P P may also be made in two straight pieces instead of being bent out of one piece.

The arrangement shown in Fig. 1 we consider preferable. We are thus enabled to make a very light and strong yoke, weighing less than one hundred and thirty pounds for a three-foot six inch gage track and a twenty-eight-inch depth of conduit.

We are aware that yokes have been used of the same general form as these shown, and we therefore disclaim such general form; but

What we do claim, and desire to secure by Letters Patent, is—

1. In street-railway road-bed construction, in combination with a yoke, the flat-bar posts P P, riveted to the bent ends E E of the tie-bars T T, for the purpose described.

2. In street-railway road-bed construction, in combination with a yoke, the flat-bar posts P P, riveted to the bent ends E E of the tie-bars T T, and the angle-pieces E′ E′, for the purpose described.

3. In street-railway road-bed construction, a yoke consisting of the channel-iron yoke-bar Y, the flat-bar posts P P, riveted to said yoke-bar, the flat-bar tie-bars T T, with bent

ends E E, riveted to said posts, and the rail-chairs R R, for the purpose described.

4. In street-railway road-bed construction, a yoke consisting of the channel-iron yoke-bar Y, the flat-bar posts P P, riveted to said yoke-bar, the flat-bar tie-bars T T, with bent ends E E and angle-pieces E′ E′, riveted to said posts, and the rail-chairs R R, substantially as described.

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